Space Weather Forecast

Issued on Thursday 24 October 2024 at 01:12 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Chance of isolated Moderate flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low with only common class flares observed, the strongest from the relatively simple sunspot region near the south-centre disc. This is showing some sign of decay, with its trailer fading. There are nine regions currently on the visible disc, however two are soon moving over the western solar horizon. Otherwise the main activity is with a collection potentially complex sunspot regions moving onto the southeast limb. While currently difficult to assess, these have the potential to reveal more complexity as the move into a clearer view .

A number of weak CMEs (coronal mass ejections) were observed leaving the Sun, however these have all been assessed as missing Earth.

Solar Wind / Geomagnetic Activity: Solar winds showed a weak enhancement, attributed the belated onset of the fast wind from the weak coronal hole, now near the west limb. Solar wind speed rose from background to be slightly elevated, from 320km/s to peak 440 km/s at around 23/1800 UTC. The Interplanetary Magnetic Field (IMF) remained mostly weak, with brief Moderate spells. The north-south component was variable in direction, but mainly weak. Geomagnetic activity was Quiet to Unsettled (Kp1-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) persisted at background with no Solar Radiation Storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate is expected, with a chance of isolated Moderate-class flares and a slight chance of Strong-class flares. This is mainly due to the regions rotating onto the southeast disc.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. Ongoing fast winds from the weak coronal hole are expected to ease day 1 (24 Oct), with background winds by day 2 (25 Oct). The next enhancement is expected to be from the fast winds from a further coronal hole, with onset likely day 3 and easing day 4 (26-27 Oct) , bringing further slight elevated to elevated winds. Geomagnetic activity is forecast to be Quiet to Unsettled with a chance of Active intervals at first. This easing to many Quiet day 2 (25 Oct). Any further fast wind enhancement will bring a spell of Unsettled to Active, with a slight chance of G1 Minor Storms day 3-4 (26-27 Oct).

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) is forecast to persist at background with no Solar Radiation Storms currently expected.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	5	10	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	60	60	60	60
Very Active	R3-R5 (X Class)	No	10	10	10	10

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	2	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.